



# POINTING OUT NONPOINT SOURCES: VERMONT'S NONPOINT SOURCE (NPS) MANAGEMENT PLAN

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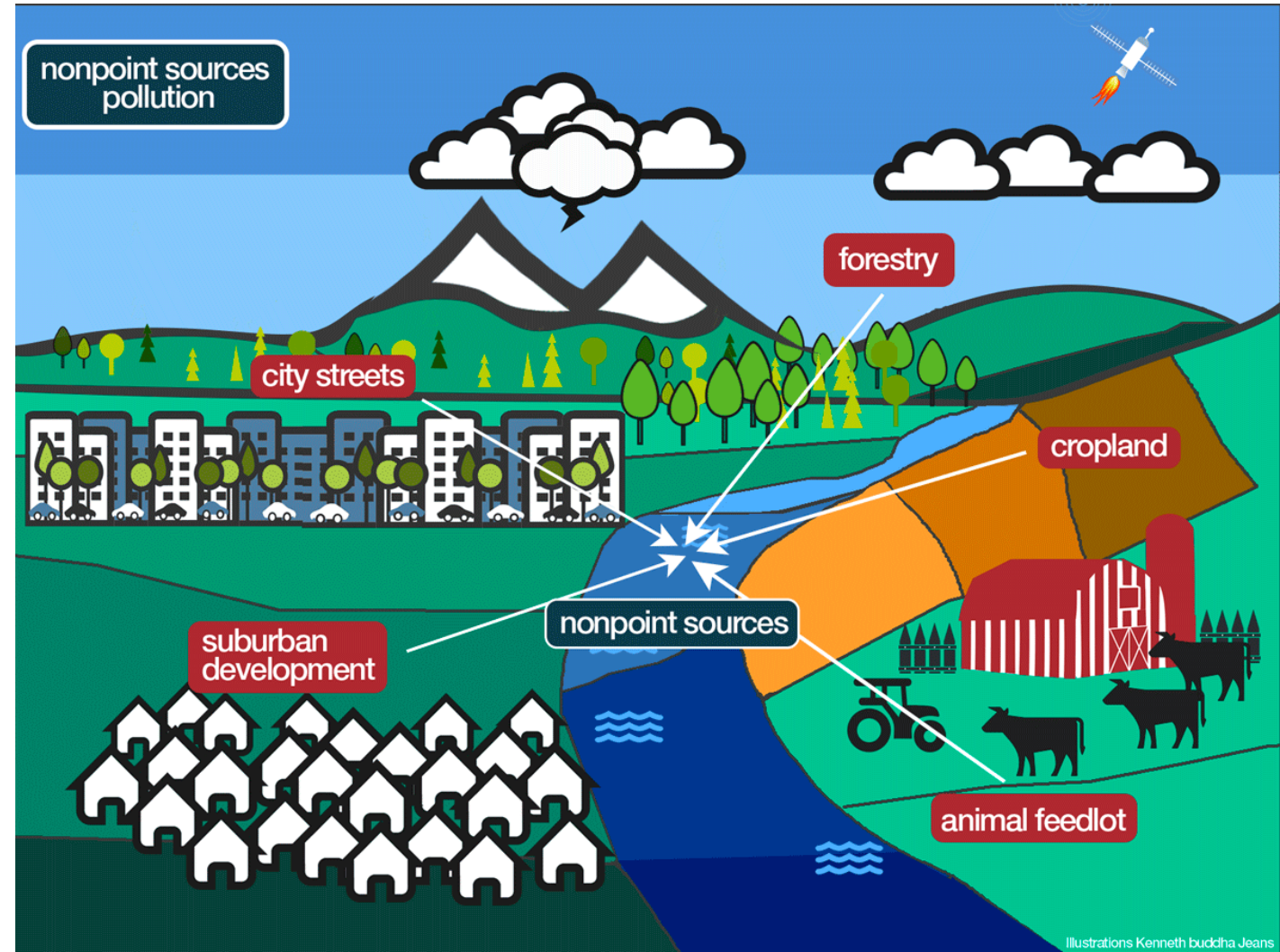
Helen Carr

Clean Water Lecture Series

December 2020

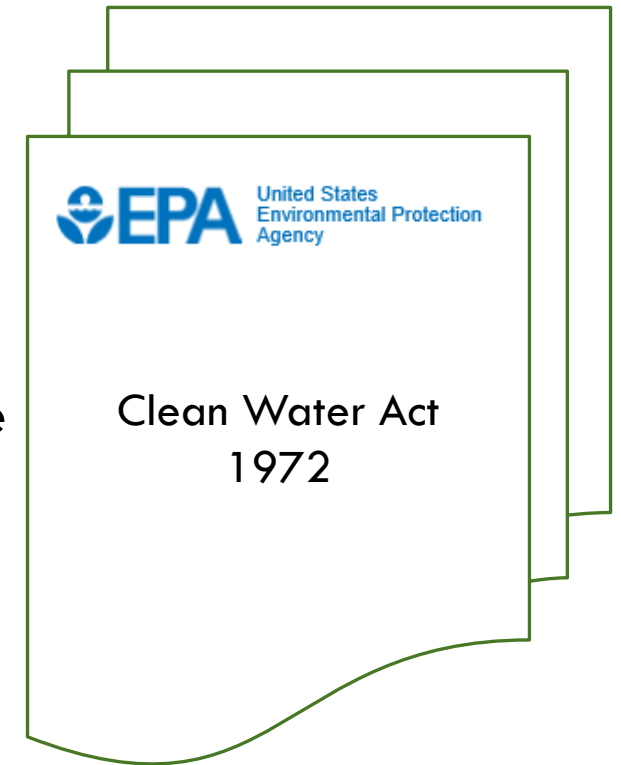
# WHAT IS NONPOINT SOURCE (NPS) POLLUTION?

- **Point source pollution** comes from a single, identifiable source, such as wastewater treatment facilities.
- **Nonpoint source (NPS)** pollution comes from many sources and is a result of runoff from
  - Developed land and roads
  - Agricultural lands
  - Forested lands
  - Hydromodification

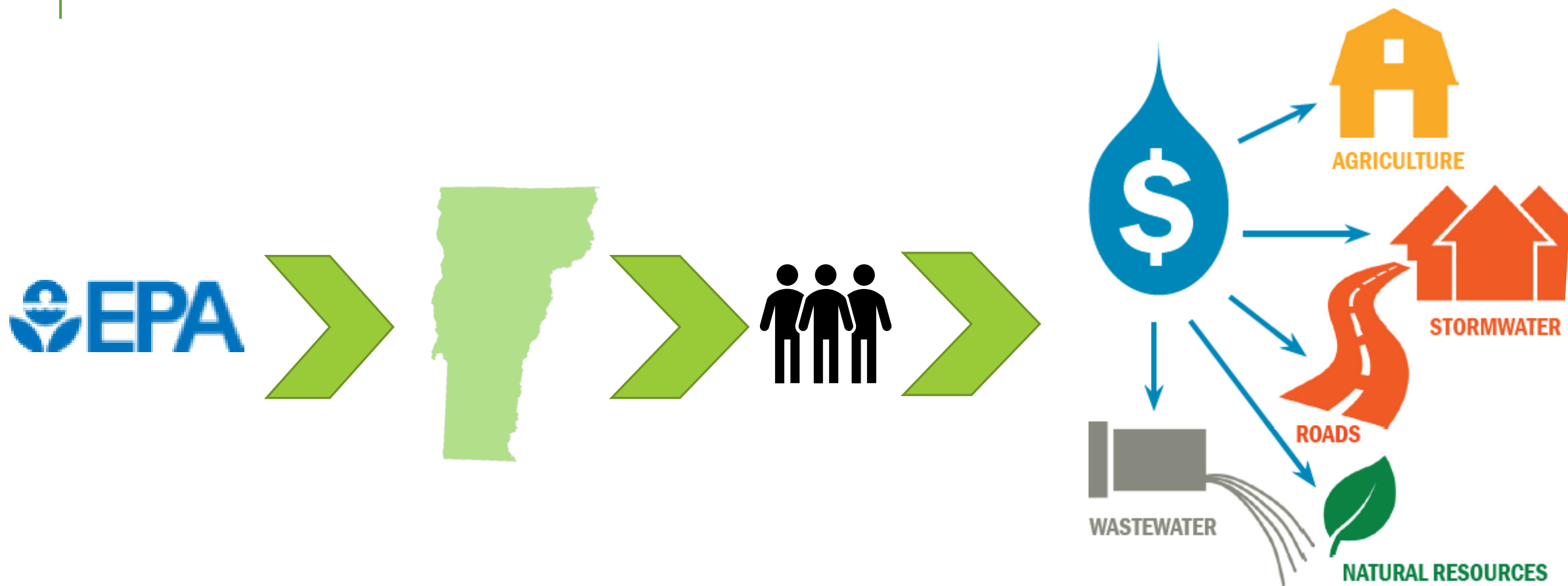


# WHY DOES VERMONT HAVE A NONPOINT SOURCE MANAGEMENT PLAN?

- ☛ Required by the Environmental Protection Agency (EPA)
- ☛ Federal Clean Water Act established Section 319 Nonpoint Source Management Program
  - ☛ Help focus state and local NPS efforts
  - ☛ Grant money that supports a wide variety of NPS activities
- ☛ EPA asks for a 5-year comprehensive plan describing how the state is identifying and addressing NPS pollution
  - ☛ Annual reporting on the plan



# HOW DO WE USE THOSE NPS FUNDS?



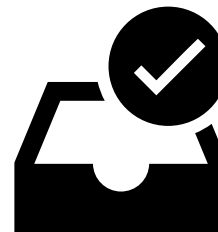
# UPDATING THE PLAN

## Vermont Nonpoint Source Management Program



August 6, 2015

Vermont Department of Environmental Conservation  
1 National Life Drive, Main 2  
Montpelier, VT 05602



## Vermont Nonpoint Source Management Program Plan 2021-2025

Submitted to U.S. Environmental Protection Agency  
September 4, 2020



Vermont Department of Environmental Conservation  
1 National Life Drive  
Montpelier, VT 05602



# WHAT HAS BEEN UPDATED?

- a. New regulations and policies
- b. More fully addresses NPS impacts on groundwater
- c. Development of initiatives focused on climate change and other emerging issues
- d. Expanded eligibility of the Clean Water State Revolving Fund (CWSRF)
- e. Expanded reporting on State Investments and Lake Champlain Restoration Plan Progress
- f. Adaptive management



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**Chapter 7: How Funding and Regulatory Programs Fight Pollution**

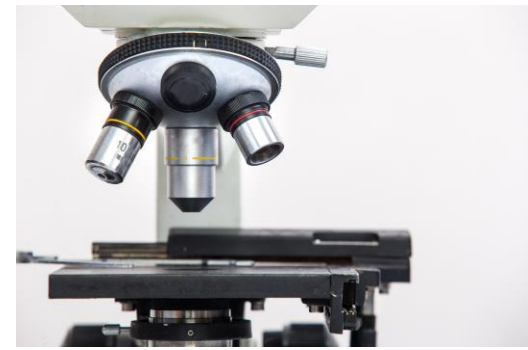
**Chapter 8: How We Measure Progress**

**Chapter 9: How We Adapt to New Information**

<https://dec.vermont.gov/water-investment/cwi/reports#NPSPlan>

Google: "Vermont Nonpoint Source Plan"

# CHAPTER 1: PURPOSE AND SCOPE



## Purpose:

- To establish the overall strategy the State of Vermont will use when carrying out and implementing various NPS pollution control and management programs during 2021 – 2025

## Scope:

- Summarizes the **causes** and **sources** of NPS pollution;
- **Sets priorities** for Vermont's most pressing NPS pollution sources;
- Identifies **strategies, funding resources and partnerships** that will be used to **restore** impaired surface and groundwater and to **protect** threatened waters; and
- Describes **five-year objectives, actions, and milestones** towards making progress achieving longer term goals of Vermont's NPS Management Program.



# CHAPTER 2. MISSION AND GOALS



## Mission

- To prevent, control, or abate ground and surface water pollution caused by the myriad of nonpoint pollution sources, such that beneficial uses of water resources are maintained or restored.

## Goals

- **Restoration of Waters** – To restore waters that are impaired by nonpoint sources of pollution to meet water quality standards.
- **Protection of Waters** – To prevent, avoid, or minimize NPS-related impairment of unimpaired waters.
- **Targeting of Resources** – To effectively target human and financial resources in order to protect, maintain, enhance, and restore waters in the most efficient and timely manner possible.

# CHAPTER 2. OBJECTIVES

## Five Year Objectives, Actions, Milestones & Timeline

- Agriculture
- Stormwater Runoff
- Hydromodification
- Forest Management

Objectives Table 1. Required Agricultural Practices and Regulatory Programs									
Lead Entity: AAFM unless otherwise noted in the Actions column									
1.1	Objectives Table 4. Nonregulatory Stormwater Management								
	Lead entity: DEC Clean Water Initiative Program unless otherwise noted								
	Objectives Table 5. Functioning Floodplains Initiative (FFI): Restoring Rivers, Floodplains and Wetlands								
	Lead Entity: DEC Rivers Program unless otherwise noted								
	4.1	Objective Table 9: Forest Lands Analysis, Tracking, Accounting and Pollutant Reduction							
		Lead Entity: Department of Forest Parks and Recreation (FPR)							
	5.1		Objectives	Actions	Milestones	2021	2022	2023	2024
		9.1	Encourage compliance with AMP rules and decrease enforcement cases.	<ul style="list-style-type: none"><li>Continue annual AMP enforcement and compliance reporting under revised AMPs using the AMP database.</li></ul>	<ul style="list-style-type: none"><li>Decrease average number of complaints from a baseline of 32 cases per year and increase the average number of technical assists from a baseline of 13 per year.</li></ul>	X	X	X	X
		9.2	Provide technical assistance and outreach to loggers, foresters and landowners	<ul style="list-style-type: none"><li>Provide trainings through partnerships with LEAP, Vermont Woodlands Association (VWA), Vermont Forests Products Association (VFPA).</li></ul>	<ul style="list-style-type: none"><li>Offer 2-3 workshops per year</li><li>Disseminate the new digital AMP manual.</li></ul>	X	X	X	X

# CHAPTER 2. OBJECTIVES

## Five Year Objectives, Actions, Milestones & Timeline

### ■ NPS Program Objectives

Objective Table 12. Clean Water Service Delivery Tasks and Programs Addressing Nonpoint Source Pollution							
Lead Entity: Clean Water Initiative Program and Watershed Planning Program							
	Objectives	Actions	Milestones	2021	2022	2023	
12.1	Provide reasonable assurances that non-regulatory TMDL targets will be achieved and maintained	<ul style="list-style-type: none"> <li>Establish Clean Water Service Providers (CWSPs) and Water Quality Restoration Formula Grant Program</li> </ul>	<ul style="list-style-type: none"> <li>Complete rulemaking process to establish CWSPs in Lake Champlain and Lake Memphremagog Basins and finalize Water Quality Restoration Formula Grant Guidance Document</li> </ul>	X			
			<ul style="list-style-type: none"> <li>Implement Water Quality Formula Grant Program</li> </ul>		X		
			<ul style="list-style-type: none"> <li>Determine timeline for expanding CWSP model to address other priority pollutants statewide</li> </ul>			X	
12.2	Ensure protection and enhancement of unimpaired waters through enhanced NPS management and protection projects	<ul style="list-style-type: none"> <li>Establish Water Quality Enhancement Grant Program</li> </ul>	<ul style="list-style-type: none"> <li>Implement Water Quality Enhancement Grant Program statewide</li> </ul>		X		

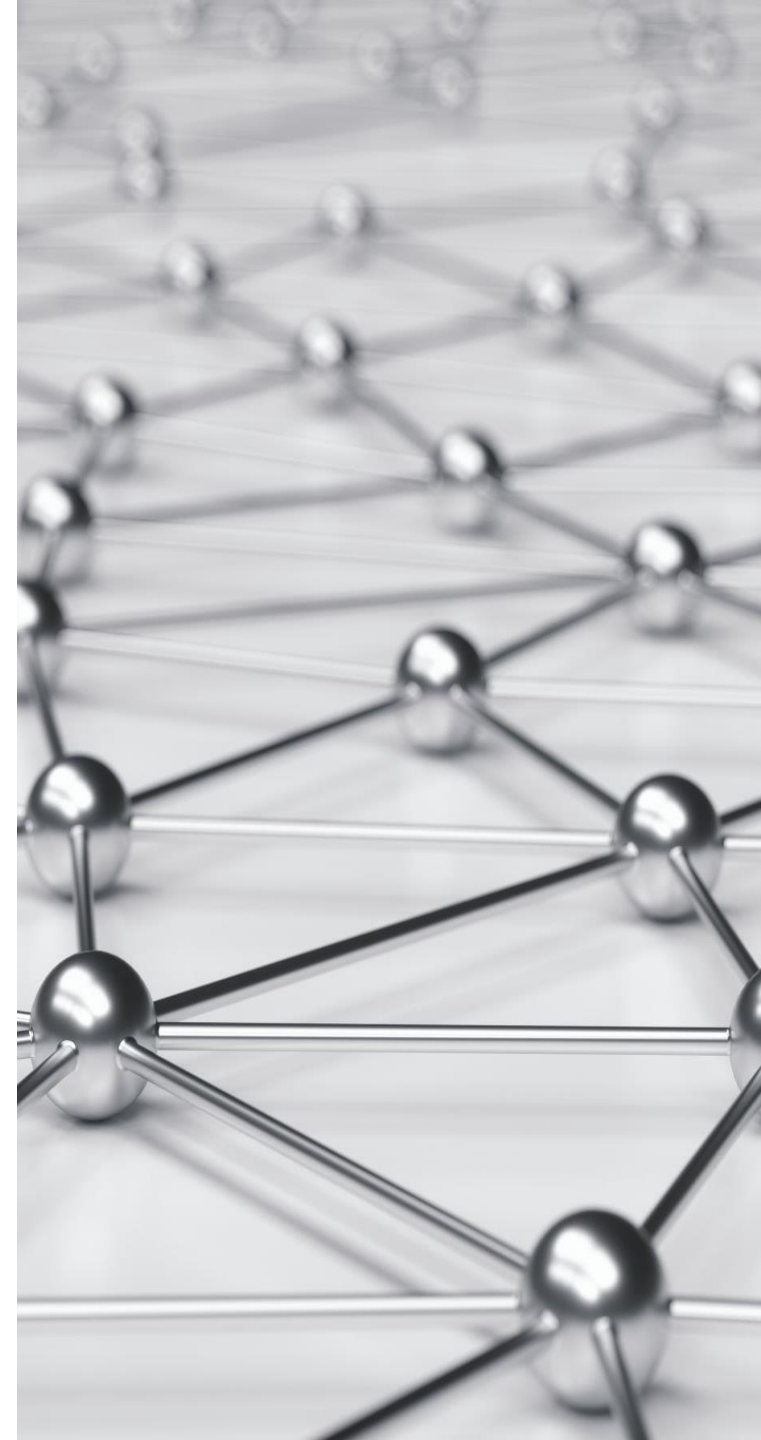
# CHAPTER 3. FRAMEWORK OF VERMONT'S NPS POLLUTION MANAGEMENT PROGRAM

Key state and federal programs, rules, procedures, permits, and practices

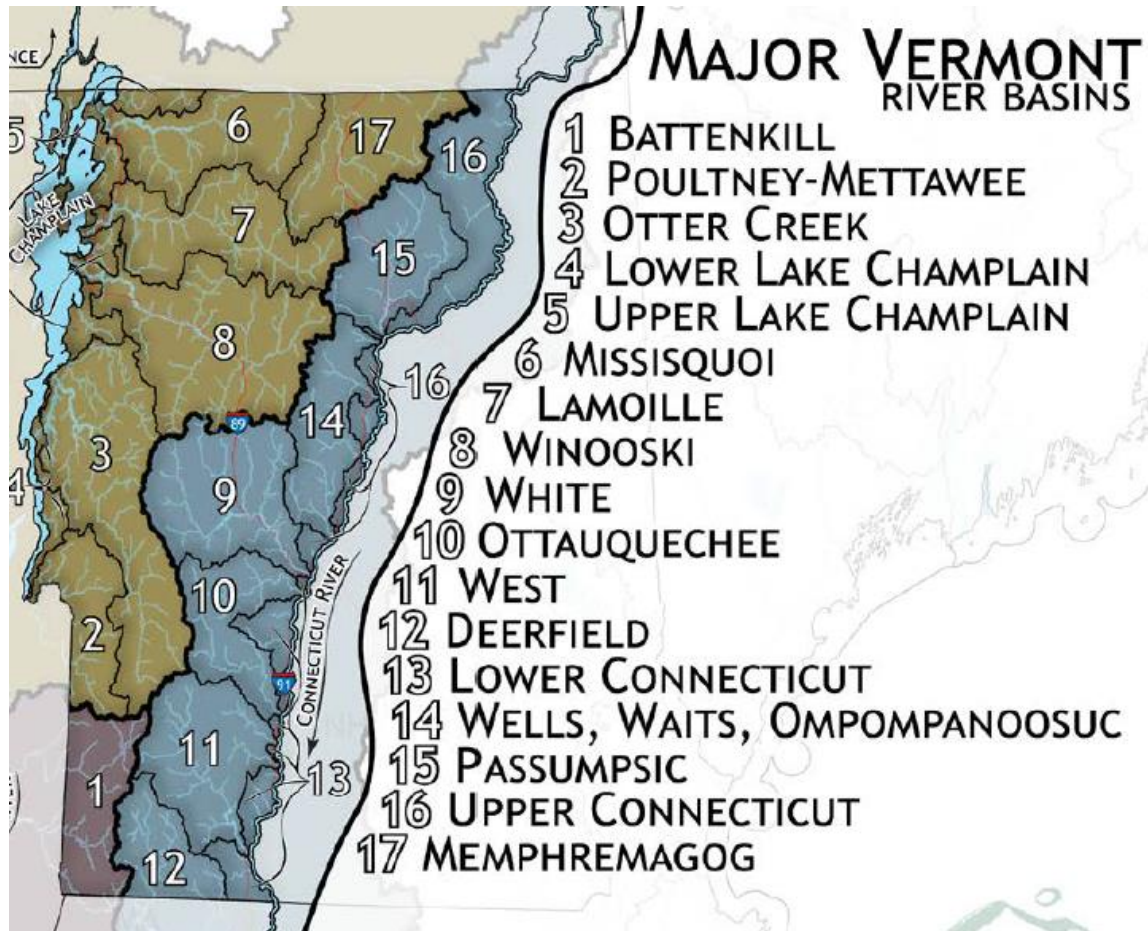
- i. Federal Clean Water Act
- ii. Water Pollution Control Statute (Title 10, Chapter 47)
- iii. Groundwater Protection Statute (Title 10, Chapter 48)
- iv. Agricultural Pollution Control Statute
- v. New laws- Act 76, Act 64
- vi. Clean Water State Revolving Fund (Act 186)

Statewide Approach

River Basins and Watersheds Approach



# CHAPTER 4: HOW NPS POLLUTION THREATENS VERMONT WATERS?



- 7,100 miles of rivers and streams
- 300,000 acres of freshwater wetlands
- 812 lake and pond waterbodies
- 60% of Vermonters use groundwater for drinking

## Top 5 Major Stressors to Surface Waters:

1. Channel Erosion
2. Encroachment
3. Invasive Species
4. Land Erosion
5. Nutrient Loading



# CHAPTER 4: HOW NPS POLLUTION THREATENS VERMONT WATERS?

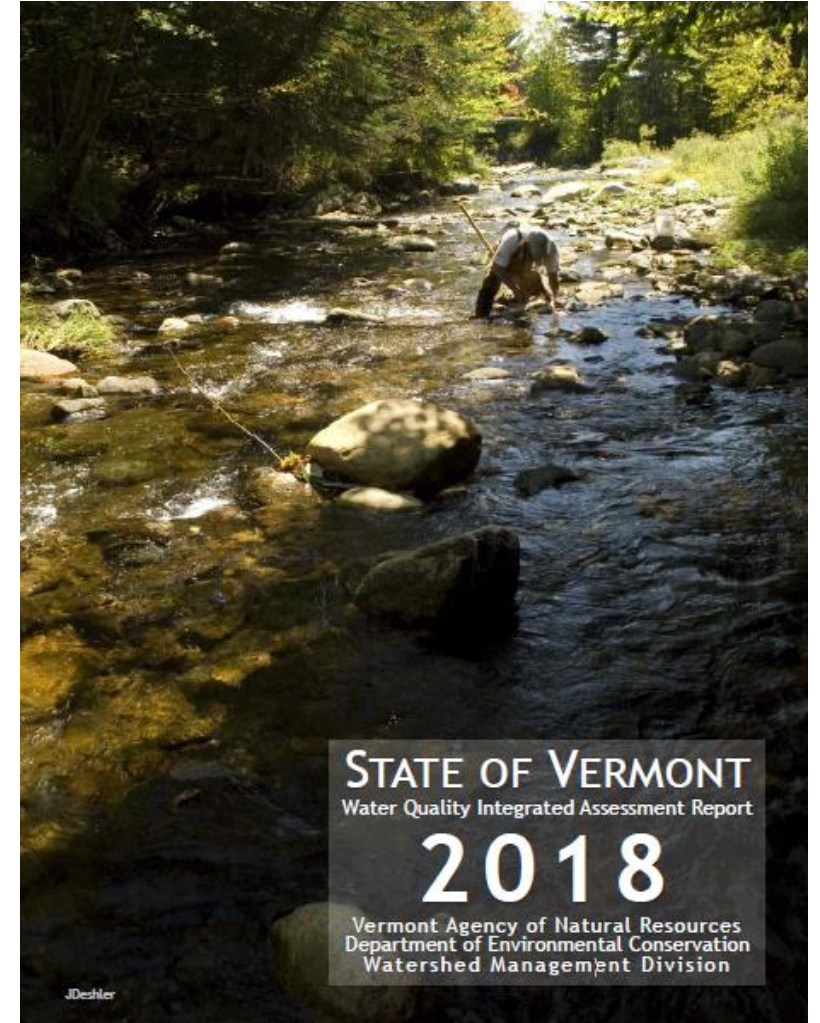
The top five causes of impairment to stream and rivers

1. Flow modification
2. E. coli
3. Sediment
4. Mercury in fish tissue
5. Nutrients

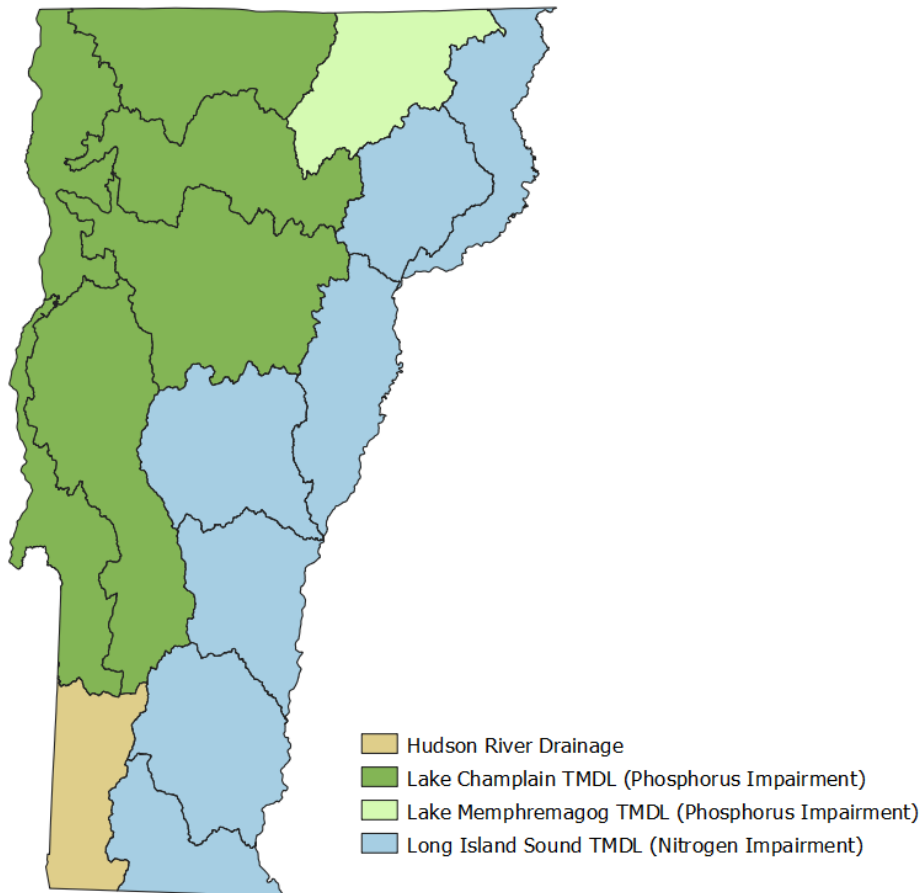
The top three causes of impairment in Lakes and Ponds

1. Flow modification
2. Mercury in fish tissue
3. Nutrients: Phosphorus

For more information on pollutants and causes of impairment see Vermont Water Quality Integrated Assessment Report



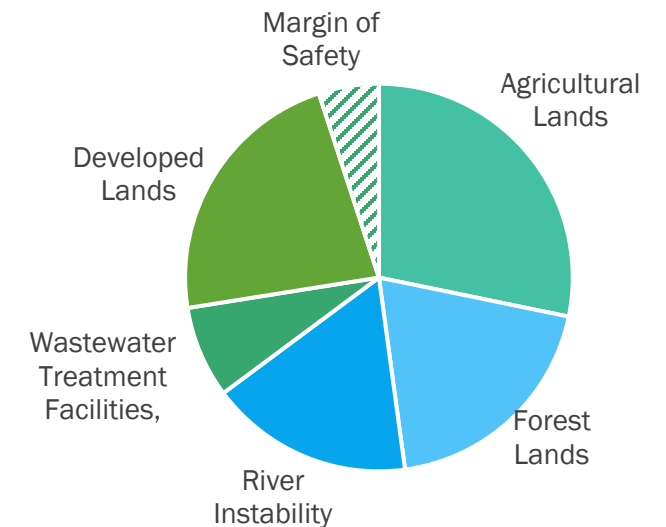
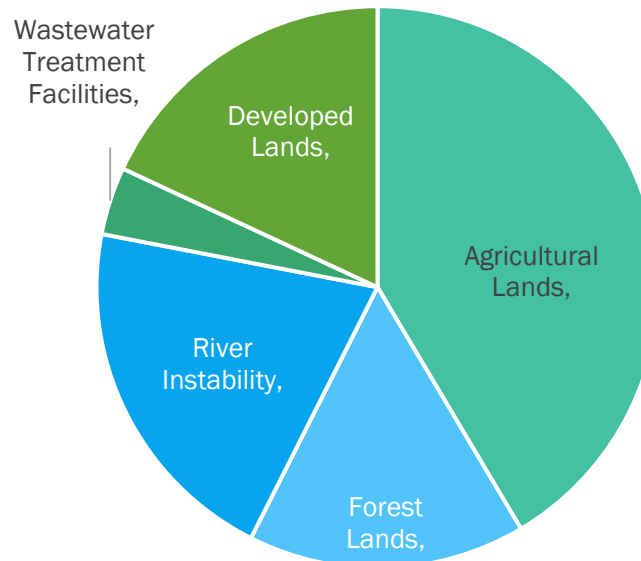
# CHAPTER 4: VERMONT'S MAJOR CLEAN WATER RESTORATION PLANS



TMDL: A plan that identifies the pollutant reductions a waterbody needs to meet Water Quality Standards

**Baseline total phosphorus load  
to Lake Champlain  
631 metric tons per year**

**Target total phosphorus load  
to Lake Champlain:  
418 metric tons per year**



# CHAPTER 5. PROTECTION AND RESTORATION OF PRIORITY WATERS

1. Process to Identify and Protect High-Quality Wetlands, Lakes and Streams
2. Prioritized list of NPS Impaired waters in need of restoration (Appendix B)

Waterbody ID	Code	Waterbody Name	Impaired Use(s)	Pollutant	Problem	TMDL Priority
VT05-07	01	Rugg Brook, from Mouth to Approx 3.1 Miles Upstream	AES, ALS, CR	SEDIMENTATION/SILTATION, NUTRIENTS, ESCHERICHIA COLI (E. COLI)	Agricultural runoff	High
	03	Jewett Brook (3.5 Miles)	ALS	SEDIMENTATION/SILTATION, NUTRIENTS	Agricultural runoff	High
	04	Mill River, from St. Albans Bay to 1.8 Miles Upstream	ALS	NUTRIENTS, SEDIMENTATION/SILTATION	Agricultural runoff, streambank erosion	High
	05	Stevens Brook, Mouth Upstream 6.5 Miles	ALS, CR	NUTRIENTS, SEDIMENTATION/SILTATION, ESCHERICHIA COLI (E. COLI)	Agricultural runoff; morphological instability; St Albans CSO	High

# CHAPTER 6. VERMONT WATER QUALITY PLANNING & IMPLEMENTATION



# CHAPTER 7: NPS FUNDING PROGRAMS, REGULATORY PROGRAMS AND PARTNERSHIPS

Agency	Clean Water Funding Programs	Regulatory Programs
Agency of Agriculture, Food and Markets (AAFM)	Best Management Practice (BMP) Program	
	Capital Equipment Assistance Program	Required Agricultural Practices
	Clean Water Fund Grants and Contracts	Large Farm Operation (LFO)
	Clean Water Fund Operational Funds	permit program
	Conservation Reserve Enhancement Program	Medium Farm Operation (MFO)
	Farm Agronomic Practice (FAP) Program	permit program
	Water Quality Grants	Certified Small Farm Operation
	Vermont Phosphorus Innovation Challenge	(CSFO) certification program
Agency of Natural Resources (ANR)	Clean Water State Revolving Fund Loans	Drinking Water permits
	Clean Water Initiative Program Grants and Contracts	Lake Shoreland Permits
	Fish and Wildlife Dept. Watershed Grants	River Management permits
	Municipal Pollution Control Grants	Stormwater Permits
	Municipal Roads Grants-in-Aid	Wetland Permits



# CHAPTER 8: HOW WE MEASURE PROGRESS

## 1. Measuring Environmental Conditions, Progress & Success

- a. Role of Climate Change in Measuring Progress
- b. Tracking and Accounting for Phosphorus

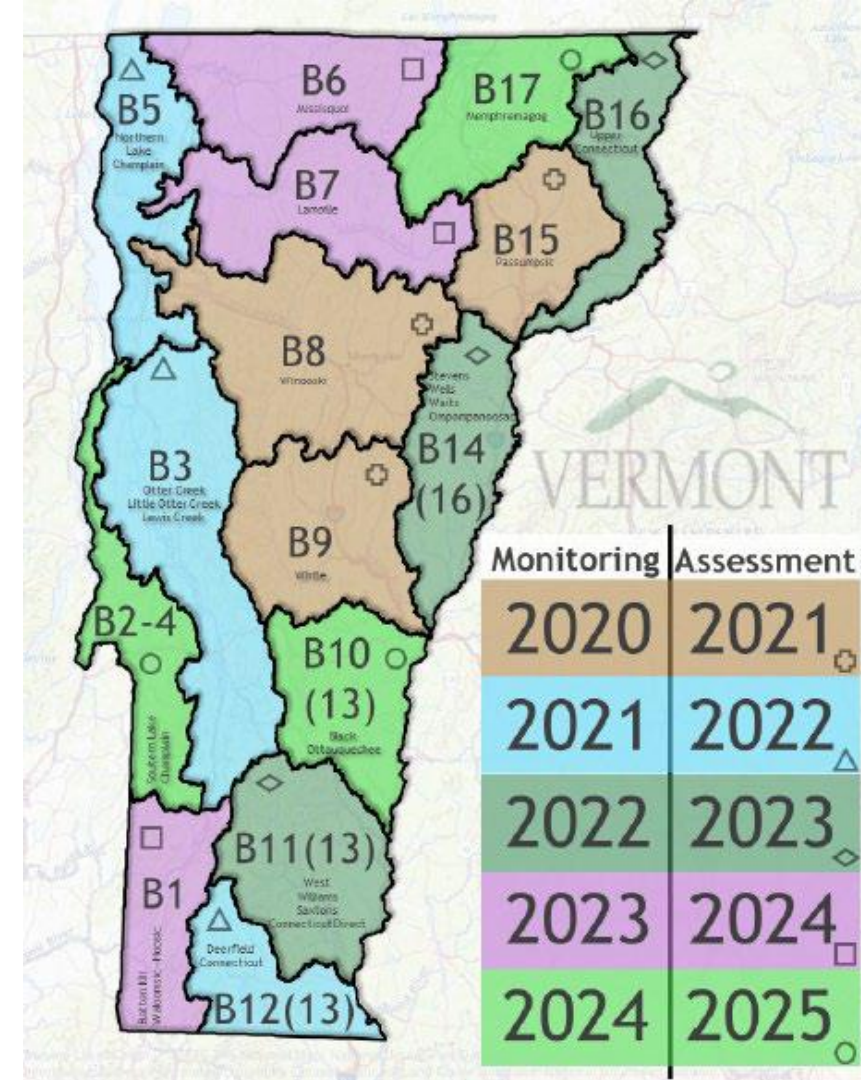
## 2. Surface Water Quality Monitoring

- a. Rotational Tactical Basin Assessment
- b. River/Stream Geomorphic Assessments

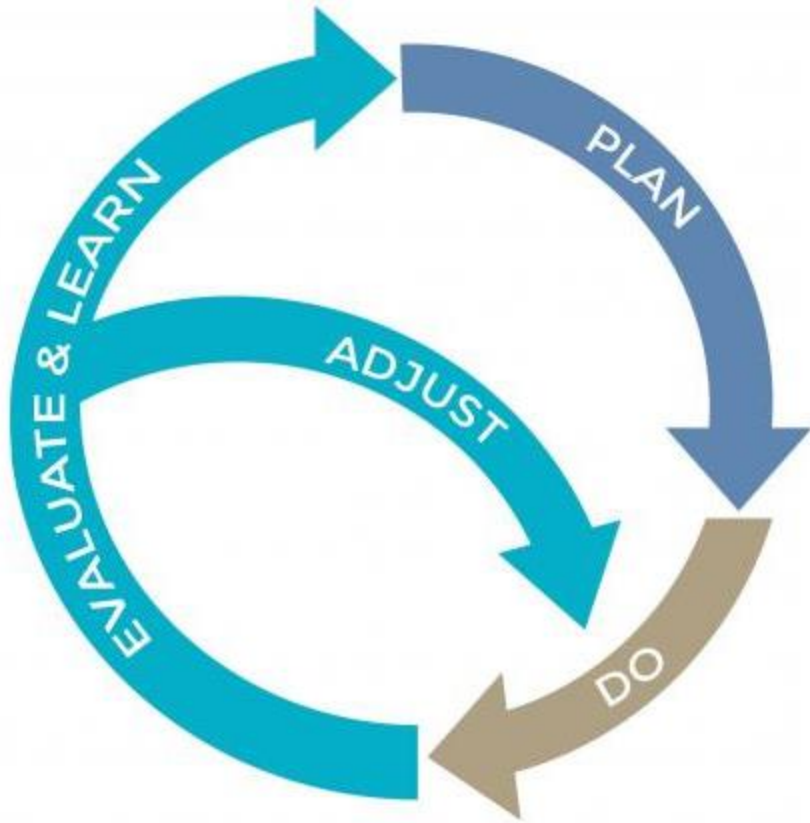
## 3. Groundwater and Drinking Water Monitoring

- a. Public and potable water systems
- b. Groundwater monitoring network

## 4. Vermont NPS Program Evaluation and Reporting



# CHAPTER 9: ADAPTIVE MANAGEMENT



## ADAPTIVE MANAGEMENT THROUGH:

- A. TACTICAL BASIN PLANNING AND ACCOUNTING OF ACCOMPLISHMENTS
- B. INNOVATION IN PROJECTS
- C. INNOVATION IN COMPENSATION AND FINANCING MODELS
- D. INNOVATION IN POLICY
- E. INCREMENTAL INVESTMENT

# CLEAN WATER?

## WE'VE GOT A PLAN FOR THAT!



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September 4, 2020



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Montpelier, VT 05602

<https://dec.vermont.gov/water-investment/cwi/reports#NPSPlan>



# THANK YOU!

Thank you to the NPS core team members within DEC's Water Investment Division:

👍 Neil Kamman

👍 Ethan Swift

👍 Chris Rottler

👍 Emily Bird

Thank you to the many individuals and partner agencies and programs who provided input:

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👍 DEC's Drinking Water and Groundwater Protection Division

👍 DEC's Watershed Management Division

👍 Environmental Protection Agency

